

REMARKS/ARGUMENTS

1. In the above referenced Office Action, the Examiner rejected claims 1 and 5 under 35 USC § 103 (a) as being unpatentable over Grimani (U.S. Patent No. 6,498,852) in view of Goff (U.S. Patent No. 6,317,117); claim 2 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag (U.S. Patent No. 5,892,833); claim 3 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin (U.S. Patent No. 6,088,461); claim 4 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin; claim 6 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Bevan (U.S. Patent No. 6,064,066); claims 7 and 10 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff; claim 8 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag; claim 9 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin; claim 11 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Bevan; claims 12 and 16 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff; claim 13 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag; claim 14 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin; claim 15 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin; claim 17 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Bevan; claims 18 and 21 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff; claim 19 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag; claim 20 under 35 USC § 103 (a) as being unpatentable over

Grimani in view of Goff and Lin; claim 22 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Bevan; claim 23 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff; claim 24 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag; claim 25 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin; claim 26 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin; claim 27 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff; claim 28 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag; claim 29 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin; and claim 30 under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. These rejections have been traversed and, as such, the applicant respectfully requests reconsideration of the allowability of claims 1 - 30.

2. Claims 1 and 5 have been rejected under 35 USC § 103 (a) as being unpatentable over Grimani (U.S. Patent No. 6,498,852) in view of Goff (U.S. Patent No. 6,317,117). The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

Grimani teaches an automatic low frequency effect (LFE) signal derivation system as shown in Figures 1, 2, 4, 8, and 10. The function of this system is shown in Figures 2 and 3 and described in the corresponding text at column 3, line 20, through column 4, line 5. In particular, the system takes the low frequency components of each input 11

- 15, adjust their gains via the VGAs 3, sums them together via summing modules 6, attenuates the summed resultant, which may be added to LFE input 30 via summing module 8 to produce a fully summed output that is filtered via low pass filter 9 to produce LFE output 40. As such, this system controls the contributions of each signal to the low frequency effect output 40.

As illustrated in Figure 3, the system does not affect the higher frequency components of each input signal. As shown in Figure 2, the input signals are passed through corresponding VSNs 2, which have the function shown in Figure 3. As shown in Figure 3, when the low frequency components of the input signal, as determined by the detector 1, is below a threshold, the frequency response of the VSN is flat, such that the input signal is passed as the corresponding output signal. When the low frequency components of the input signal are just past the threshold, the frequency response of the VSN attenuates low frequency components and passes the higher frequency components. The attenuation of the lower frequency components increase as the level of the lower frequency components of the input signal exceeds the threshold.

Goff teaches a control panel (Figure 7) for adjusting the frequency response of various filters that are used in audio spectrum processors. Figures 8 - 17 illustrate the various combinations of key activations and the corresponding filter response changes.

The combined teachings of Grimani and Goff fail to render the presently claimed invention obvious. As

discussed above, Grimani teaches a system for processing the low frequency components of various input signals (left, right, center, surround left, and surround right) and further teaches that the higher frequency components of these signals are passed without attenuation. Goff teaches a control panel for more intuitive control of adjusting the frequency response of various filters that are used in audio spectrum processors.

These references do not teach or suggest a computer audio system that includes an audio codec and a tone controller as presently claimed. The audio codec provides a first stereo audio output, a second stereo audio output, and a monotone audio output to the tone controller. Grimani does not teach or suggest having a monotone output. The tone controller includes a low pass filter, a high pass filter, a band pass filter, and a summing node. The low pass filter is operably coupled to filter the monotone audio output, wherein the low pass filter passes a bass component of the monotone audio output substantially unattenuated and attenuates higher frequency components of the monotone audio output. Grimani and Goff, alone or in combination, do not teach using a low pass filter in such a manner.

The high pass filter of the tone controller is operably coupled to filter the first stereo audio output, wherein the high passes filter passes a treble component of the first stereo audio output substantially unattenuated and attenuates lower frequency components of the first stereo audio signal. Grimani and Goff, alone or in combination, do not teach using a high pass filter in such

a manner. While Grimani teaches using a high pass filter in the VSN as shown in figures 7 and 9, the corner frequency of the high pass filter 84, 124 is at the corner frequency of the low pass filter 88, 128. (See column 4, lines 58 - 63.) In particular, the corner frequency of the high pass filter of the present claim is above the mid band components of the input signal, which is, in turn, at frequencies above the low frequency components of the input signal.

The band pass filter of the tone controller is operably coupled to filter the second stereo audio output, wherein the band pass filter passes a mid band component of the second audio output substantially unattenuated and attenuates low frequency components and high frequency components of the second stereo audio signal. Grimani and Goff, alone or in combination, do not teach using a band pass filter in such a manner.

The summing module of the tone controller is operably coupled to sum the bass component, the treble component, and the mid band component to produce a tone controlled audio output. Grimani and Goff, alone or in combination, do not teach using a summing module in such a manner. The summing modules of Grimani are used to sum only the low frequency components of the various signals and not the output of various filters as in the present claim. As such, the combined teaches of Grimani and Goff fail to teach or suggest producing a tone controlled audio output as is produced in the present claims 1 and 5. As such, the applicant believes that claims 1 and 5 overcome the present rejection.

3. Claim 2 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag (U.S. Patent No. 5,892,833). The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 1, from which claim 2 depends, has been shown to overcome its present rejection. The rejection of claim 2 is based on the rejection of claim 1 with further reference to additional art. Since claim 2 introduces additional patentable subject matter and since the basis for the rejection of claim 1 is overcome, combining the cited references of claim 1 with additional art fails to render claim 2 obvious in view of such art. Thus, the applicant believes that claim 2 overcomes the present rejection.

4. Claim 3 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin (U.S. Patent No. 6,088,461). The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 1, from which claim 3 depends, has been shown to overcome its present rejection. The rejection of claim 3 is based on the rejection of claim 1 with further reference to additional art. Since claim 3 introduces additional patentable subject matter and since the basis for the rejection of claim 1 is overcome, combining the cited references of claim 1 with additional art fails to render claim 3 obvious in view of such art.

Thus, the applicant believes that claim 3 overcomes the present rejection.

5. Claim 4 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 1, from which claim 4 depends, has been shown to overcome its present rejection. The rejection of claim 4 is based on the rejection of claim 1 with further reference to additional art. Since claim 4 introduces additional patentable subject matter and since the basis for the rejection of claim 1 is overcome, combining the cited references of claim 1 with additional art fails to render claim 4 obvious in view of such art. Thus, the applicant believes that claim 4 overcomes the present rejection.

6. Claim 6 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Bevan (U.S. Patent No. 6,064,066). The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 1, from which claim 6 depends, has been shown to overcome its present rejection. The rejection of claim 6 is based on the rejection of claim 1 with further reference to additional art. Since claim 6 introduces additional patentable subject matter and since the basis for the rejection of claim 1 is overcome,

combining the cited references of claim 1 with additional art fails to render claim 6 obvious in view of such art. Thus, the applicant believes that claim 6 overcomes the present rejection.

7. Claims 7 and 10 have been rejected under 35 USC § 103 (a) as being unpatentable over Grimaldi in view of Goff. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

The applicant believes that the reasons which distinguish claim 1 over the cited art are applicable in distinguishing these claims over the same art. Thus, the applicant believes that claims 7 and 10 overcome the present rejection.

8. Claim 8 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimaldi in view of Goff and Maag. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 7, from which claim 8 depends, has been shown to overcome its present rejection. The rejection of claim 8 is based on the rejection of claim 7 with further reference to additional art. Since claim 8 introduces additional patentable subject matter and since the basis for the rejection of claim 7 is overcome, combining the cited references of claim 7 with additional art fails to render claim 8 obvious in view of such art.

Thus, the applicant believes that claim 8 overcomes the present rejection.

9. Claim 9 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 7, from which claim 9 depends, has been shown to overcome its present rejection. The rejection of claim 9 is based on the rejection of claim 7 with further reference to additional art. Since claim 9 introduces additional patentable subject matter and since the basis for the rejection of claim 7 is overcome, combining the cited references of claim 7 with additional art fails to render claim 9 obvious in view of such art. Thus, the applicant believes that claim 9 overcomes the present rejection.

10. Claim 11 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Bevan. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 7, from which claim 11 depends, has been shown to overcome its present rejection. The rejection of claim 11 is based on the rejection of claim 7 with further reference to additional art. Since claim 11 introduces additional patentable subject matter and since the basis for the rejection of claim 7 is overcome,

combining the cited references of claim 7 with additional art fails to render claim 11 obvious in view of such art. Thus, the applicant believes that claim 11 overcomes the present rejection.

11. Claims 12 and 16 have been rejected under 35 USC § 103 (a) as being unpatentable over Grmani in view of Goff. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

The applicant believes that the reasons which distinguish claim 1 over the cited art are applicable in distinguishing these claims over the same art. Thus, the applicant believes that claims 12 and 16 overcome the present rejection.

12. Claim 13 has been rejected under 35 USC § 103 (a) as being unpatentable over Grmani in view of Goff and Maag. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 12, from which claim 13 depends, has been shown to overcome its present rejection. The rejection of claim 13 is based on the rejection of claim 12 with further reference to additional art. Since claim 13 introduces additional patentable subject matter and since the basis for the rejection of claim 12 is overcome, combining the cited references of claim 12 with additional art fails to render claim 13 obvious in view of such art.

Thus, the applicant believes that claim 13 overcomes the present rejection.

13. Claim 14 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 12, from which claim 14 depends, has been shown to overcome its present rejection. The rejection of claim 14 is based on the rejection of claim 12 with further reference to additional art. Since claim 14 introduces additional patentable subject matter and since the basis for the rejection of claim 12 is overcome, combining the cited references of claim 12 with additional art fails to render claim 14 obvious in view of such art. Thus, the applicant believes that claim 14 overcomes the present rejection.

14. Claim 15 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 12, from which claim 15 depends, has been shown to overcome its present rejection. The rejection of claim 15 is based on the rejection of claim 12 with further reference to additional art. Since claim 15 introduces additional patentable subject matter and since the basis for the rejection of claim 12 is overcome,

combining the cited references of claim 12 with additional art fails to render claim 15 obvious in view of such art. Thus, the applicant believes that claim 15 overcomes the present rejection.

15. Claim 17 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Bevan. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 12, from which claim 17 depends, has been shown to overcome its present rejection. The rejection of claim 17 is based on the rejection of claim 12 with further reference to additional art. Since claim 17 introduces additional patentable subject matter and since the basis for the rejection of claim 12 is overcome, combining the cited references of claim 12 with additional art fails to render claim 17 obvious in view of such art. Thus, the applicant believes that claim 17 overcomes the present rejection.

16. Claims 18 and 21 have been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

The applicant believes that the reasons which distinguish claim 1 over the cited art are applicable in distinguishing these claims over the same art. Thus, the

applicant believes that claims 18 and 21 overcome the present rejection.

17. Claim 19 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 18, from which claim 19 depends, has been shown to overcome its present rejection. The rejection of claim 19 is based on the rejection of claim 18 with further reference to additional art. Since claim 19 introduces additional patentable subject matter and since the basis for the rejection of claim 18 is overcome, combining the cited references of claim 18 with additional art fails to render claim 19 obvious in view of such art. Thus, the applicant believes that claim 19 overcomes the present rejection.

18. Claim 20 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 18, from which claim 20 depends, has been shown to overcome its present rejection. The rejection of claim 20 is based on the rejection of claim 18 with further reference to additional art. Since claim 20 introduces additional patentable subject matter and since the basis for the rejection of claim 18 is overcome,

combining the cited references of claim 18 with additional art fails to render claim 20 obvious in view of such art. Thus, the applicant believes that claim 20 overcomes the present rejection.

19. Claim 22 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Bevan. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 18, from which claim 22 depends, has been shown to overcome its present rejection. The rejection of claim 22 is based on the rejection of claim 18 with further reference to additional art. Since claim 22 introduces additional patentable subject matter and since the basis for the rejection of claim 18 is overcome, combining the cited references of claim 18 with additional art fails to render claim 22 obvious in view of such art. Thus, the applicant believes that claim 22 overcomes the present rejection.

20. Claim 23 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

The applicant believes that the reasons which distinguish claim 1 over the cited art are applicable in distinguishing this claim over the same art. Thus, the

applicant believes that claim 23 overcomes the present rejection.

21. Claim 24 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 23, from which claim 24 depends, has been shown to overcome its present rejection. The rejection of claim 24 is based on the rejection of claim 23 with further reference to additional art. Since claim 24 introduces additional patentable subject matter and since the basis for the rejection of claim 23 is overcome, combining the cited references of claim 23 with additional art fails to render claim 24 obvious in view of such art. Thus, the applicant believes that claim 24 overcomes the present rejection.

22. Claim 25 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 23, from which claim 25 depends, has been shown to overcome its present rejection. The rejection of claim 25 is based on the rejection of claim 23 with further reference to additional art. Since claim 25 introduces additional patentable subject matter and since the basis for the rejection of claim 23 is overcome,

combining the cited references of claim 23 with additional art fails to render claim 25 obvious in view of such art. Thus, the applicant believes that claim 25 overcomes the present rejection.

23. Claim 26 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 23, from which claim 26 depends, has been shown to overcome its present rejection. The rejection of claim 26 is based on the rejection of claim 23 with further reference to additional art. Since claim 26 introduces additional patentable subject matter and since the basis for the rejection of claim 23 is overcome, combining the cited references of claim 23 with additional art fails to render claim 26 obvious in view of such art. Thus, the applicant believes that claim 26 overcomes the present rejection.

24. Claim 27 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

The applicant believes that the reasons which distinguish claim 1 over the cited art are applicable in distinguishing this claim over the same art. Thus, the

applicant believes that claim 27 overcomes the present rejection.

25. Claim 28 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Maag. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 27, from which claim 28 depends, has been shown to overcome its present rejection. The rejection of claim 28 is based on the rejection of claim 27 with further reference to additional art. Since claim 28 introduces additional patentable subject matter and since the basis for the rejection of claim 27 is overcome, combining the cited references of claim 27 with additional art fails to render claim 28 obvious in view of such art. Thus, the applicant believes that claim 28 overcomes the present rejection.

26. Claim 29 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 27, from which claim 29 depends, has been shown to overcome its present rejection. The rejection of claim 28 is based on the rejection of claim 27 with further reference to additional art. Since claim 29 introduces additional patentable subject matter and since the basis for the rejection of claim 27 is overcome,

combining the cited references of claim 27 with additional art fails to render claim 29 obvious in view of such art. Thus, the applicant believes that claim 29 overcomes the present rejection.

27. Claim 30 has been rejected under 35 USC § 103 (a) as being unpatentable over Grimani in view of Goff and Lin. The applicant respectfully disagrees with the Examiner's characterization of the present claims in view of the cited prior art.

As shown above, claim 27, from which claim 30 depends, has been shown to overcome its present rejection. The rejection of claim 28 is based on the rejection of claim 27 with further reference to additional art. Since claim 30 introduces additional patentable subject matter and since the basis for the rejection of claim 27 is overcome, combining the cited references of claim 27 with additional art fails to render claim 30 obvious in view of such art. Thus, the applicant believes that claim 30 overcomes the present rejection.

For the foregoing reasons, the applicant believes that claims 1 - 30 are in condition for allowance and respectfully request that they be passed to allowance.

The Examiner is invited to contact the undersigned by telephone or facsimile if the Examiner believes that such a communication would advance the prosecution of the present invention.

RESPECTFULLY SUBMITTED,

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CERTIFICATE OF MAILING

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